CUMULATIVE AUTHOR INDEX

Annals of the Entomological Society of America, Volume 80, 1987

Abbott, B.D., 353
Adams, P.A., 804
Agee, H.R., 820
Ahmed, S.W., 655
Ali, Mahtab, 501
Aliniazee, M.T., 823
Allen, D.C., 541
Allen, R.K., 35
Alstad, D.N., 652
Archbold, E.F., 571
Ashworth, A.C., 865
Atkinson, T.H., 692

Baerwald, R.J., 637
Baisier, M., 417
Ballou, J.K., 312
Barbosa, P., 141
Barron, J.R., 21
Bartlett, A.C., 797
Benedict, N.Q., 55
Bennett, F.D., 712
Berberet, R.C., 483
Bermudez, E.M., 89
Bermudez, L.V., 89
Bernays, E.A., 9
Boyne, J.V., 284
Bradley, J.T., 217
Brewer, F.D., 642
Bromel, M., 775
Brushwein, J.R., 671
Burger, J.F., 89
Burkholder, W.E., 578
Burrows, E.M., 655
Burwell, B., 781

Candido, A.O., 130
Carroll, J.F., 256
Carroll, S.P., 373
Cates, S.M., 520
Cave, R.D., 217
Chamberlain, J.D., 136
Chase, D.L., 136
Chen, C.-P., 790
Chow, Y.-S., 490
Clarke, J.L. III, 534
Coats, S.A., 697
Collins, J.A., 435
Cunningham, R.T., 765
Cwikla, P.S., 429

Dahlsten, D.L., 417
Dai, J.-D., 339
Daterman, G.E., 47
Denlinger, D.L., 790
Deyrup, M.A., 692
Dietz, A., 74
Dodson, G., 494
Doss, R.P., 41
Drees, B.M., 51
Drew, R.A.I., 629
Dueben, B., 278
Duh, F.M., 775

Eaton, J.L., 468
Edgerly, J.S., 29
Edmunds, G.F. Jr., 652
Eischen, F.A., 74, 103

Fargo, W.S., 306
Feener, D.H. Jr., 148
Foster, W.A., 103
Freeman, J.V., 613
Fuester, R.W., 750
Funk, D.H., 600
Furniss, M.M., 692

Gagne, R.J., 502
Garcia, R., 267
Gary, N.E., 664
Gassner, G., 775
Gaylor, M.J., 217
Gerling, D., 224
Gilreath, M.E., 768
Goeden, R.D., 152, 161
Goff, M.L., 809
Grant, G.G., 78
Gregoire, J.-C., 417
Grisham, M.P., 251, 411
Groce, J.C. Jr., 750
Grodowitz, G.U., 761
Grosch, D.S., 353
Guttman, S.I., 590
Guy, R.H., 278

Habeck D.H., 712
Hagen. K.S., 267
Ha[illegible], R.D., 391
Hammack, L., 775
Hart, E.R., 293
Hart, W.G., 508
Harvey, D.J., 513
Hatchett, J.H., 475
Heath, R.R., 278
Henneberry, T.J., 406
Hess, K.A., 520
Hilburn, L.R., 288
Hoebeke, E.R., 462
Hoganson, J.W., 865
Holley, M.E., 212
Hooker, M.E., 655
Horvitz, C.C., 513
Hough-Goldstein, J.A., 520
Howard, R.W., 398

Inayatullah, C., 306

Jackson, C.G., 367
Jacobson, D.W., 534
Jang, E.-S., 486
Jennings, D.T., 435
Johnson, N.F., 660
Jones, M.D.R., 534
Jorgensen, C.D., 561

Kambhampati, S., 1
Kenerley, C.M., 251
Kimsey, R.B., 118
Knutson, L., 710, 829
Koch, H.G., 624
Koehler, P.G., 820
Kou, R., 490
Kunz, S.E., 288

LaMunyon, C.W., 804
Lambdin, P.L., 100
Larew, M.G., 502
Larsen, J.E., 561
Lee, R.E. Jr., 790
Leppla, N.C., 278, 820
Levin, M.D., 176
Lewis, L.J., 797
Lingren, P.D., 406
Little, N.F., 765
Lloyd, A.C., 629
Lockwood, J.A., 686
Lorensen, K., 664
Loye, J.E., 373

Mackauer, M., 1
Mackley, J.W., 130
Magnuson, L.J., 637
Martin, J.A., 731
Martin, W.R. Jr., 251
Martinat, P.J., 141, 541
McCafferty, W.P., 191, 472, 667
McDonald, P.T., 17, 289
McGiffen, M.E. Jr., 284
McGregor, M., 417
McInnis, D.O., 333
McLean, D.L., 118
McPherson, J.E., 680
Messina, F.J., 12
Meyer, J.R., 284
Meyerdirk, D.E., 272
Michener, C.D., 439
Miller, N.C., 417
Mockford, E.L., 849
Moratorio, M.S., 272
Morgan, P.W., 251, 411
Moser, J.C., 417
Murvosh, C.M., 35
Mutchmor, J.A., 697

Naranjo, S.E., 641
Nelson, R., 406
Nguyen, R., 713

O'Brien, L.B., 379
Odejar, M., 483
Orth, R.E., 829

Packauskas, R.J., 680
Pakaluk, J., 456
Panno, J.P., 1
Pashley, D.P., 731
Patterson, R.S., 820
Peng, Y.-S., 814
Peterson, R.D. II, 130
Pickens, L.G., 256
Powell, R.D., 411
Pupedis, R.J., 758

Rai, K.S., 321
Rao, P.N., 321
Reierson, D.A., 571
Ricker, D.W., 152, 161
Roach, S.H., 346
Robacker, D.C., 508
Robinson, J.F., 212
Rosenheim, J.A., 739
Rossman, A.Y., 502
Rowley, W.A., 534
Ruberson, J.R., 451, 561
Rust, M.K., 571

Sailer, R.I., 713
Sakagami, S.F., 439
Sawyer, A.J., 841
Schmidt, J.O., 176
Seawright, J.A., 55
Shanks, C.H. Jr., 41, 136
Shuey, J.A., 584
Sinha, R.N., 184
Smith, C.M., 212
Smith, J.P., 391
Smith, J.W. Jr., 768
Smith, S.G.F., 761
Sower, L.L., 47
Spivak, D., 224
Sprint, M.M., 468
Sterling, W.L., 251, 411
Stoffolano, J.G. Jr., 339
Story, R.N., 686
Stuart, J.J., 475
Swaby, J.A., 47
Sweeney, B.W., 600

Tanaka, T., 530
Tauber, C.A., 451
Tauber, M.J., 451
Taylor, D.B., 109
Taylor, P.B., 750
Terranova, A.C., 346
Thoenes, S.C., 176
Thomas, D.B. Jr., 720
Thomas, G.D., 391
Tollefson, J.J., 697
Torchio, P.F., 781
Tsai, J.H., 312
Tschinkel, W.R., 208, 263
Turnbull, C., 513

Vail, P.V., 734
Vail, S.S., 734
Vannote, R.L., 600
Vineyard, R.N., 62
Vinson, S.B., 224, 486

Walgenbach, C.A., 578
Walker, G.P., 524
Walker, T.J., 547

Waltz, R.D., 191, 667
Webster, J.A., 306
Webster, T.C., 814
Wege, P., 9
Welbourn, W.C., 230, 243
Werner, R.A., 417
Weseloh, R.M., 361
Westcott, R.L., 823
White, M.D.G., 184
Wiggins, G.B., 62
Willson, L.J., 483
Wilson, S.W., 312
Woo, J.Y., 692
Woods, P.E., 590
Yin, C.M., 339
Young, O.P., 230, 243

CUMULATIVE SUBJECT INDEX

Annals of the Entomological Society of America, Volume 80, 1987

Abscission, cotton, 251
  microorganisms, 251
  Pseudatomoscelis seriatus, 251
  salivary glands, 251
Absolute density, Ixodidae, 624
  ticks, 624
Acarpenna, Baetis, 667
  Diphetor, 667
  Pallcoon, 667
  taxonomy, 667
Aciurina trixa, ecology, 494
  life histories, 494
  Valentibulla dodsoni, 494
Actograph, insect activity chamber, 136
  Otiorhynchus sulcatus, 136
Acyrthosiphon pisum, Aphidius smithi, 1
  egg distribution, 1
  parasitism, 1
  pattern analysis, 1
Adaptation, camouflage, 55
  homochromy, 55
Adult diapause, *Agabus disintegratus*, 267
  Conotrachelus nenuphar, 284
  estival diapause, 267
  postdiapause development, 284
  supercooling, 284
Adult flight, phenology, 823
  Rhagoletis pomonella, 823
  trapping, 823
Adult food, bacteria, 629
  Dacus, 629
  host plant, 629
Aedes aegypti, Anopheles quadrimaculatus, 103
  blood-feeding frequency, 103
  gonotrophic cycle, 103
  sugar-feeding, 103
Aedes brelandi, Aedes hendersoni, 109
  Aedes triseriatus, 109
  cytology, 109
  genetics, 109
  hybridization, 109
  speciation, 109
Aedes hendersoni, Aedes brelandi, 109
  Aedes triseriatus, 109
  cytology, 109
  genetics, 109
  hybridization, 109
  speciation, 109
Aedes triseriatus, Aedes brelandi, 109
  Aedes hendersoni, 109
  cytology, 109
  genetics, 109
  hybridization, 109
  speciation, 109
Agabus disintegratus, adult diapause, 267
  estival diapause, 267
Age-grading, *Anthonomus grandis*, 642
  ovarian anatomy, 642
Agmatoploidy, aneuploidy, 720
  chromosomes, 720
Alarm pheromone, defensive secretion, 686
  Nezara viridula, 686
Aleurocanthus woglumi, Encarsia opulenta, 713
  Encarsia smithi, 713
Aleyrodidae, feeding behavior, 524
  oviposition behavior, 524
  Parabemisia myricae, 524
Amber, *Denina dubiloca*, 472
  Sphemeridae, 472
  fossil, 472
Ammophila dysmica, cleptoparasite, 739
  Sphecidae, 739
Anagrus girault, Circulifer tenellus, 272
  egg parasitoid, 272
Anaphes ovijentatus, Lygus hesperus, 367
  Miridae, 367
  parasitoids, 367
Anastrepha suspensa, electroantennograms, 508
  pheromones, 508
  Tephritidae, 508
Aneuploidy, agmatoploidy, 720
  chromosomes, 720
Anopheles quadrimaculatus, Aedes aegypti, 103
  blood-feeding frequency, 103
  gonotrophic cycle, 103
  sugar-feeding, 103
Antennal development, *Bracon hebetor*, 353
Anthonomus grandis, age-grading, 642
  ovarian anatomy, 642
Anthophoridae, Apidae, 439
  Manueliini, 439
  social behaivor, 439
Anticarsia gemmatalis, courtship behavior, 278
Antifeedant, behavior, 9
  bioassays, 9
  inferential statistics, 9
Apanteles kariyai, Pseudaletia separata, 530
  pupation, 530
Aphidae, foraging, 758
  Sisyridae, 758
Aphidius smithi, Acyrthosiphon pisum, 1
  egg distribution, 1
  parasitism, 1
  pattern analysis, 1
Apidae, Anthophoridae, 439
  Manueliini, 439
  social behavior, 439
Apis mellifera, cannibalism, 814
  collecting, 664
  feeding deterrent, 74
  Galleria mellonella, 74
  insects, 664
  plant resins, 74
  pollen, 176
  survival, 176
  trophallaxis, 814
  vacuum device, 664
Arctis, Euphyes, 584
  phylogenetics, 584
Artemisia ludoviciana, displacement patterns, 761
  Hypochlora alba, 761
  host-plant fidelity, 761
Assassin bugs, distribution, 293
  Zelus, 293

Bacteria, adult food, 629
  Dacus, 629
  host plant, 629
Bacterial attractant, *Cochliomyia hominivorax*, 775
  host finding, 775
  Providencia rettgeri, 775
Baculovirus, *Heliothis virescens*, 734
  Heliothis zea, 734
  nuclear polyhedrosis virus, 734
Baetidae, *Cloeodes*, 191
  Ephemeroptera, 191
  revision, 191
Baetis, Acerpenna, 667
  Diphetor, 667
  Pallcoon, 667
  taxonomy, 667
Bascarrhinus, new species, 429
Bathyplectes curculionis, actual parasitism, 483
  effective parasitism, 483
  encapsulation probabilities, 483
  Hypera postica, 483
Behavior, antifeedant, 9
  bioassays, 9
  Ceratitis capitata, 17
  Geocoris punctipes, 217
  inferential statistics, 9
  kairomone, 217
  lek, 17
  pheromones, 17
  Pelenomus reynoldsi, 217
  Yponomeuta cagnagella, 462
Bemisia tabaci, Encarsia deserti, 224
  host discrimination, 224
  reproduction, 224
Bioassays, antifeedant, 9
  behavior, 9
  inferential statistics, 9
Biogeography, phylogeny, 398
  Tribolium spp., 398
Biological control, *Cirsium*, 152, 161
  Dendroctonus, 417
  Rhovum puttleri, 451
  herbivory, 152, 161
  host age, 451
  insect faunas, 152, 161
  Leptinotarsa decemlineata, 451
  predators, 417
  thistles, 152
Biological stress, *Pseudatomoscelis seriatus*, 411
  wound ethylene, 411
Biology, *Cadegusia occidentalis*, 781
  Delphacidae, 312
  immature morphology, 312
  Lonamyia hamata, 671
  Neuroptera, 671
  pupae, 781
Blattella germanica, Deuteromycotina, 571
  life history, 571
  spectral sensitivity, 820
  vision, 820
Blood-feeding frequency, *Aedes aegypti*, 103
  Anopheles quadrimaculatus, 103
  gonotrophic cycle, 103
  sugar-feeding, 103
Bracon hebetor, antennal development, 353

Braconidae, parasitism, 391
Stomoxys calcitrans, 391
Bucculatrix thurberiella, reproductive biology, 406
spermatophores, 406
Burlap flaps, *Lymantria dispar*, 361
resting sites, 361
survival rates, 361

Cadegualа occidentalis, biology, 781
pupae, 781
Calathea ovandensis, *Eurybia elvina*, 513
myrmecophily, 513
Riodinidae, 513
Calling behavior, *Heliothis armigera*, 490
pheromones, 490
Callosobruchus, cowpea weevil, 12
dispersal polymorphism, 12
genetic control, 12
Camouflage, adaptation, 55
homochromy, 55
Campoletis sonorensis, development activation, 486
eggs, 486
parasitoids, 486
Cannibalism, *Apis mellifera*, 814
trophallaxis, 814
Cardiac-recurrent nerve, neurosecretory cells, 339
Phormia regina, 339
C-banding, chromosomes, 321
karyotypes, 321
Nematocera, 321
Ceratitis capitata, behavior, 17
directional selection, 333
heritability, 333
lek, 17
pheromones, 17
Cerococcus, *Cerococcus mirandae*, 100
new species, 100
scale, 100
Cerococcus mirandae, *Cerococcus*, 100
new species, 100
scale, 100
Chemical defense, Chrysoperla comanche, 804
Eremochrysa, 804
Chiggers, opossums, 809
Choristoneura fumiferana, copulation, 78
lepidopterous prey, 435
parasites, 435
sex pheromones, 78
tactile cues, 78
Chromosomes, agmatoploidy, 720
aneuploidy, 720
C-banding, 321
karyotypes, 321
Nematocera, 321
Chrysoperla comanche, chemical defense, 804
Eremochrysa, 804
Circadian flight activity, mosquito flight behavior, 534
Circulifer tenellus, *Anagrus giraulti*, 272
egg parasitoid, 272
Cirsium, biological control, 152, 161
herbivory, 152, 161
insect faunas, 152, 161
thistles, 152
Cixiidae, Derbidae, 379
Fulgoroidea, 379
Cleptoparasite, *Ammophila dysmica*, 739
Sphecidae, 739
Cloeodes, Baetidae, 191
Ephemeroptera, 191
revision, 191
Clothoda urichi, communal behavior, 29
egg parasitism, 29
Cochliomyia hominivorax, longevity, 130
oocyte maturation, 130
sugar, 130
bacterial attractant, 775
host finding, 775
Providencia rettgeri, 775
Coconut pests, *Palmicultor palmarum*, 501
palm pests, 501
Coevolution, Hemiptera, 373
Jaders, 373
Collecting, *Apis mellifera*, 664
insects, 664
vacuum device, 664
Communal behavior, *Clothoda urichi*, 29
egg parasitism, 29
Conotrachelus nenuphar, adult diapause, 284
postdiapause development, 284
supercooling, 284
Copulation, *Choristoneura fumiferana*, 78
sex pheromones, 78
tactile cues, 78
Corn, *Cynaeus angustus*, 184
energy budget, 184
storage, 184
Cotton, abscission, 251
microorganisms, 251
Pseudatomoscelis seriatus, 251
salivary glands, 251
Courtship behavior, *Anticarsia gemmatalis*, 278
mating behavior, 578
Sitophilus zeamais, 578
Cowpea weevil, *Callosobruchus*, 12
dispersal polymorphism, 12
genetic control, 12
Cydia pomonella, embryology, 561
histogenesis, 561
Cynaeus angustus, corn, 184
energy budget, 184
storage, 184
Cytology, *Mayetiola destructor*, 475

Dactylopius confusus, fertility tables, 768
life tables, 768
survivorship, 768

Dacus, adult food, 629
bacteria, 629
host plant, 629
Dacus latifrons, pheromone gland, 765
sexual dimorphism, 765
Defensive secretion, alarm pheromone, 686
Nezara viridula, 686
Delia platura, group effect, 520
mating, 520
oviposition, 520
Delphacidae, biology, 312
immature morphology, 312
Dendroctonus, biological control, 417
predators, 417
Denina dubiloca, amber, 472
Ephermeridae, 472
fossil, 472
Derbidae, Cixiidae, 379
Fulgoroidea, 379
Dermacentor variabilis, electroretinogram, 256
Hyalomma dromedarii, 256
Deuteromycotina, *Blattella germanica*, 571
life history, 571
Development, *Heterocampa guttivitta*, 541
survivorship, 541
Development activation, *Campoletis sonorensis*, 486
eggs, 486
parasitoids, 486
Diabrotica virgifera, juvenile hormone, 697
migratory flight, 697
ovarian development, 697
Diapause, *Pectinophora gossypiella*, 797
selection response, 797
Diphetor, *Acerpenna*, 667
Baetis, 667
Fallceon, 667
taxonomy, 667
Directional selection, *Ceratitis capitata*, 333
heritability, 333
Dispersal polymorphism, *Callosobruchus*, 12
cowpea weevil, 12
genetic control, 12
Displacement patterns, *Artemisia ludoviciana*, 761
Hypochlora alba, 761
host-plant fidelity, 761
Distribution, assassin bugs, 293
Selus, 293

Ectoparasite, *Lasioerythraeus johnstoni*, 243
Lygus lineolaris, 243
predator, 243
Edovum puttleri, biological control, 451
host age, 451
Leptinotarsa decemlineata, 451
Egg distribution, *Acyrthosiphon pisum*, 1
Aphidius smithi, 1
parasitism, 1
pattern analysis, 1
Egg parasitism, behavior, 29
Clothoda urichi, 29
Egg parasitoid, *Anagrus giraulti*, 272
Circulifer tenellus, 272
Eggs, *Campoletis sonorensis*, 486
development activation, 486
Gelis spp., 21
new species, 21
parasites, 21
parasitoids, 486
Electroantennograms, *Anastrepha suspensa*, 508
pheromones, 508
Tephritidae, 508
Electron microscopy, *Toxorhynchites*, 637
trichobothria, 637
Electronic measurement system, feeding behavior, 118
piercing and sucking insects, 118
Electrophoresis, genetics, 288
Haematobia irritans, 288
Phidippus, 346
Electroretinogram, *Dermacentor variabilis*, 256
Hyalomma dromedarii, 256
Elgiva, biology , 829
systematics, 829
Embidopsocus systematics, Liposcelidae, 849
Psocoptera, 849
Embryology, *Cydia pomonella*, 561
histogenesis, 561
Encapsulation probabilities, *Bathyplectes curculionis*, 483
Hypera postica, 483
parasitism, actual, 483
parasitism, effective, 483
Encarsia desertii, *Bemisia tabaci*, 224
host discrimination, 224
reproduction, 224
Encarsia opulenta, *Aleurocanthus woglumi*, 713
Encarsia smithi, 713
Encarsia smithi, *Aleurocanthus woglumi*, 713
Encarsia opulenta, 713
Endomychidae, *Rhymbomicrus*, 456
systematics, 456
Energy budget, *Cynaeus angustus*, 184
corn, 184
storage, 184
Ephemeridae, amber, 472
Denina dubiloca, 472
fossil, 472
Ephemeroptera, Baetidae, 191
Cloeodes, 191
gene flow, 600
genetic structure, 600
revision, 191
Tricorythidae, 35
taxonomy, 35
Epilachna varivestis, longevity, 655
Pediobius foveolatus, 655
Eremochrysa, Chrysoperla comanche, 804
chemical defense, 804

Estival diapause, *Agabus disintegratus*, 267
adult diapause, 267
Euphyes, Arotis, 584
phylogenetics, 584
Eurybia elvina, Calathos ovandensis, 513
myrmecophily, 513
Riodinidae, 513

Falconn, Acarpenna, 667
Baetis, 667
Diphetor, 667
taxonomy, 667
Faunal history, modern and fossil beetles, 865
Feeding, phagostimulant, 41
sterols, 41
sucrose, 41
weevils, 41
Feeding behavior, Aleyrodidae, 524
electronic measurement system, 118
Parahemiptis myricae, 524
piercing and sucking insects, 118
Feeding deterrent, *Apis mellifera*, 74
Galleria mellonella, 74
plant resins, 74
Feeding flanges, fungi, 212
Oebalus pugnax, 212
rice, 212
Fertility tables, *Dactylopius confusus*, 768
life tables, 768
survivorship, 768
Flesh flies, glycerol, 790
temperature effects, 790
Flight, circadian flight activity, 534
mosquito flight behavior, 534
moths, 468
ocelli, 468
Trichoplusia ni, 468
Foraging, Aphidae, 758
Sisyridae, 758
Formicidae, ovariole number, 208
queens, 208
spermatheca, 208
Fossil, amber, 472
Denino dubilocs, 472
Ephemeridae, 472
Fulgoroidea, Cixiidae, 379
Derbidae, 379
Functional response, *Glyptapanteles flavicoxis*, 750
Lymantria dispar, 750
progeny per host, 750
Fungi, feeding flanges, 212
Oebalus pugnax, 212
rice, 212

Galleria mellonella, feeding deterrent, 74
plant resins, 74
Gelis spp., eggs, 21
new species, 21
parasites, 21
Gene flow, Ephemeroptera, 600
genetic structure, 600
Genetic control, *Callosobruchus*, 12
cowpea weevil, 12
dispersal polymorphism, 12
Genetic structure, Ephemeroptera, 600
gene flow, 600
Genetics, *Aedes brelandi*, 109
Aedes hendersoni, 109
Aedes triseriatus, 109
cytology, 109
electrophoresis, 288
Haematobia irritans, 288
hybridization, 109
speciation, 109
Geocoris punctipes, behavior, 217
kairomone, 217
Telenomus reynoldsi, 217
Glycerol, flesh flies, 790
temperature effects, 790
Glyptapanteles flavicoxis, functional response, 750
Lymantria dispar, 750
progeny per host, 750
Gonotrophic cycle, *Aedes aegypti*, 103
Anopheles quadrimaculatus, 103
blood-feeding frequency, 103
sugar-feeding, 103
Group effect, *Delia platura*, 520
mating, 520
oviposition, 520
Gryllus rubens, migration, 547
polymorphism, 547
polyphenism, 547

Haematobia irritans, electrophoresis, 288
genetics, 288
Heliothis armigera, calling behavior, 490
pheromones, 490
Heliothis virescens, baculovirus, 734
Heliothis zea, 734
nuclear polyhedrosis virus, 734
Heliothis zea, baculovirus, 734
Heliothis virescens, 734
nuclear polyhedrosis virus, 734
Hemiptera, coevolution, 373
Jadera, 373
Herbivory, biological control, 152, 161
Cirsium, 152, 161
insect faunas, 152, 161
thistles, 152
Heritability, *Ceratitis capitata*, 333
directional selection, 333
Heterocampa guttivitta, development, 541
survivorship, 541

Heteroptera, life history, 680
Mepa, 680
rearing, 680
Heterozygosity, *Neodiprion*, 590
population genetics, 590
Histogenesis, *Cydia pomonella*, 561
embryology, 561
Homochromy, adaptation, 55
camouflage, 55
Host age, biological control, 451
Edovum puttleri, 451
Leptinotarsa decemlineata, 451
Host discrimination, *Semiaia tabaci*, 224
*Encarsia desert*i, 224
reproduction, 224
Host finding, bacterial attractant, 775
Cochliomyia hominivorax, 775
Providencia rettgeri, 775
Host plant, adult food, 629
bacteria, 629
Dacus, 629
Host-plant fidelity, *Artemisia ludoviciana*, 761
displacement patterns, 761
Hypochlora alba, 761
Host-plant suitability, *Lymantria dispar*, 141
larval food consumption rates, 141
Hyalomma dromedarii, Dermacentor variabilis, 256
electroretinogram, 256
Hybridization, *Aedes brelandi*, 109
Aedes hendersoni, 109
Aedes triseriatus, 109
cytology, 109
genetics, 109
speciation, 109
Hypera postica, actual parasitism, 483
Bathyplectes curculionis, 483
effective parasitism, 483
encapsulation probabilities, 483
Hypochlora alba, Artemisia ludoviciana, 761
displacement patterns, 761
host-plant fidelity, 761

Immature morphology, biology, 312
Delphacidae, 312
Inferential statistics, antifeedant, 9
behavior, 9
bioassays, 9
Insect activity chamber, actograph, 136
Otiorhynchus sulcatus, 136
Insect faunas, biological control, 152, 161
Cirsium, 152, 161
herbivory, 152, 161
thistles, 152
Insects, *Apis mellifera*, 664
collecting, 664
vacuum device, 664
Interdemic mating, *Nuculaspis californica*, 652
population density, 652
Ixodidae, absolute density, 624
ticks, 624

Jadera, coevolution, 373
Hemiptera, 373
Juvenile hormone, *Diabrotica virgifera*, 697
migratory flight, 697
ovarian development, 697

Kairomone, behavior, 217
Geocoris punctipes, 217
Telenomus reynoldsi, 217
Karyotypes, C-banding, 321
chromosomes, 321
Nematocera, 321
Key, *Lygus lineolaris*, 230

Larval food consumption rates, host-plant suitability, 141
Lymantria dispar, 141
Lasioerythraeus johnstoni, ectoparasite, 243
Lygus lineolaris, 243
predator, 243
Ledomyia collarata, Xylaria enterogena, 502
prothoracic collar, 502
stroma, 502
Lek, behavior, 17
Ceratitis capitata, 17
pheromones, 17
Lepidopterous prey, *Choristoneura fumiferana*, 435
parasites, 435
Leptinotarsa decemlineata, biological control, 451
Edovum puttleri, 451
host age, 451
Life history, *Aciurina trixa*, 494
Blattella germanica, 571
Deuteromycotina, 571
Heteroptera, 680
Mepa, 680
rearing, 680
Valentibulla dodsoni, 494
Yponomeuta cagnagella, 462
Life tables, *Dactylopius confusus*, 768
fertility tables, 768
survivorship, 768
Liposcelidae, *Embidopsocus* systematics, 849
Psocoptera, 849
Lomamyia hamata, biology, 671
Neuroptera, 671
Longevity, *Cochiomyia hominivorax*, 130
Epilachna varivestis, 655
oocyte maturation, 130
Pediobius foveolatus, 655
Solenopsis invicta, 263
spermatheca, 263
sugar, 130

Lygus hesperus, *Anaphes ovijentatus*, 367
Miridae, 367
parasitoids, 367
Lygus lineolaris, ectoparasite, 243
key, 230
Lasioerythraeus johnstoni, 243
new genus, 230
new species, 230
predator, 243
Lymantria dispar, burlap flaps, 361
functional response, 750
Glyptapanteles flavicoxis, 750
host-plant suitability, 141
larval food consumption rates, 141
progeny per host, 750
resting sites, 361
survival rates, 361

Manuelia ni, Anthophoridae, 439
Apidae, 439
social behavior, 439
Mating, *Delia platura*, 520
group effect, 520
oviposition, 520
Mating behavior, courtship behavior, 578
Orgyia pseudotsugata, 47
pheromones, 47
Sitophilus zeamais, 578
Mayetiola destructor, cytology, 475
morphogenesis, 475
polytene chromosomes, 475
salivary glands, 475
Microorganisms, abscission, 251
cotton, 251
Pseudatomoscelis seriatus, 251
salivary glands, 251
Migration, *Gryllus rubens*, 547
polymorphism, 547
polyphenism, 547
Migratory flight, *Diabrotica virgifera*, 697
juvenile hormone, 697
ovarian development, 697
Miridae, *Anaphes ovijentatus*, 367
Lygus hesperus, 367
parasitoids, 367
Modern and fossil beetles, faunal history, 865
Morphogenesis, *Mayetiola destructor*, 475
salivary glands
Mosquito flight behavior, circadian flight activity, 534
Moths, flight, 468
ocelli, 468
Trichoplusia ni, 468
Mud cylinders, pupation, 51
Tabanus atratus, 51
Mycangium, *Pityoborus* spp., 692
Scolytidae, 692
Myrmecophily, *Calathes ovandensis*, 513
Eurybia elvina, 513
Riodinidae, 513

Nematocera, C-banding, 321
chromosomes, 321
karyotypes, 321
Neodiprion, heterozygosity, 590
population genetics, 590
Neophylax, new species, 62
Nepa, Heteroptera, 680
life history, 680
rearing, 680
Neuroptera, biology, 671
Lomamyia hamata, 671
Neurosecretory cells, cardiac-recurrent nerve, 339
Phormia regina, 339
New genus, *Lygus lineolaris*, 230
New species, *Bascarrhinus*, 429
Cerococcus, 100
Cerococcus mirandae, 100
eggs, 21
Gelis spp., 21
Lygus lineolaris, 230
Neophylax, 62
parasites, 21
review, 89
scale, 100
Tabanus spp., 89
Nezara viridula, alarm pheromone, 686
defensive secretion, 686
Northern corn rootworm, oviposition, 841
reproductive development, 841
Nuclear polyhedrosis virus, baculovirus, 734
Heliothis virescens, 734
Heliothis zea, 734
Nuculaspis californica, interdemic mating, 652
population density, 652

Ocelli, flight, 468
moths, 468
Trichoplusia ni, 468
Oebalus pugnax, feeding flanges, 212
fungi, 212
rice, 212
Oocyte maturation, *Cochliomyia hominivorax*, 130
longevity, 130
sugar, 130
Opossums, chiggers, 809
Orgyia pseudotsugata, mating behavior, 47
pheromones, 47
Otiorhynchus sulcatus, actograph, 136
insect activity chamber, 136
Ovarian anatomy, *Anthonomus grandis*, 642
age-grading, 642
Ovarian development, *Diabrotica virgifera*, 697
juvenile hormone, 697
migratory flight, 697
Ovariole number, Formicidae, 208
queens, 208
spermatheca, 208
Oviposition, *Delia platura*, 520
group effect, 520
mating, 520
northern corn rootworm, 841
reproductive development, 841
Oviposition behavior, Aleyrodidae, 524
Parabemisia myricae, 524

Palm pests, coconut pests, 501
Palmicultor palmarum, 501
Palmicultor palmarum, coconut pests, 501
palm pests, 501
Parabemisia myricae, Aleyrodidae, 524
feeding behavior, 524
oviposition behavior, 524
Parasites, *Choristoneura fumiferana*, 435
eggs, 21
Gelis spp., 21
lepidopterous prey, 435
new species, 21
Parasitism, *Acyrthosiphon pisum*, 1
Aphidius smithi, 1
Braconidae, 391
egg distribution, 1
pattern analysis, 1
Stomoxys calcitrans, 391
Parasitoids, *Anaphes ovijentatus*, 367
Campoletis sonorensis, 486
development activation, 486
eggs, 486
Lygus hesperus, 367
Miridae, 367
Pattern analysis, *Acyrthosiphon pisum*, 1
Aphidius smithi, 1
egg distribution, 1
parasitism, 1
Pectinophora gossypiella, diapause, 797
selection response, 797
Pediobius foveolatus, *Epilachna varivestis*, 655
longevity, 655
Phagostimulant, feeding, 41
sterols, 41
sucrose, 41
weevils, 41
Phanuropsis, Telenominae, 660
Phenology, adult flight, 823
Rhagoletis pomonella, 823
trapping, 823
Pheromone gland, *Dacus latifrons*, 765
sexual dimorphism, 765
Pheromones, *Anastrepha suspensa*, 508
behavior, 17
Ceratitis capitata, 17
calling behavior, 490
electroantennograms, 508
Heliothis armigera, 490
lek, 17
mating behavior, 47
Orgyia pseudotsugata, 47
Tephritidae, 508
Phidippus, electrophoresis, 346
Phormia regina, cardiac-recurrent nerve, 339
neurosecretory cells, 339
Phylogenetics, *Arotis*, 584
Euphyes, 584
Phylogeny, biogeography, 398
Tribolium spp., 398
Piercing and sucking insects, electronic measurement system, 118
feeding behavior, 118
Pityoborus spp., mycangium, 692
Scolytidae, 692
Plant resins, *Apis mellifera*, 74
feeding deterrent, 74
Galleria mellonella, 74
Plant resistance, *Schizaphis graminum*, 306
sorghum, 306
wheat, 306
Pollen, *Apis mellifera*, 176
survival, 176
Polymorphism, *Gryllus rubens*, 547
migration, 547
polyphenism, 547
Polyphenism, *Gryllus rubens*, 547
migration, 547
polymorphism, 547
Polytene chromosomes, *Mayetiola destructor*, 475
Population density, interdemic mating, 652
Nuculaspis californica, 652
Population genetics, heterozygosity, 590
Neodiprion, 590
Postdiapause development, adult diapause, 284
Conotrachelus nenuphar, 284
supercooling, 284
Predators, biological control, 417
Dendroctonus, 417
ectoparasite, 243
Lasioerythraeus johnstoni, 243
Lygus lineolaris, 243
Progeny per host, functional response, 750
Glyptapanteles flavicoxis, 750
Lymantria dispar, 750
Providencia rettgeri, bacterial attractant, 775
Cochliomyia hominivorax, 775
host finding, 775
Pseudacteon crawfordi, *Solenopsis geminata*, 148
Solenopsis xyloni, 148
size-selective oviposition, 148
Pseudaletia separata, *Apanteles kariyai*, 530
pupation, 530
Pseudatomoscelis seriatus, abscission, 251
biological stress, 411
cotton, 251
microorganisms, 251

salivary glands, 251
wound ethylene, 411
Psocoptera, *Embidopsocus* systematics, 849
Liposcelidae, 849
Pupae, biology, 781
Cadeguala occidentalis, 781
Pupation, *Apanteles kariyai*, 530
mud cylinders, 51
Pseudaletia separata, 530
Tabanus atratus, 51

Queens, Formicidae, 208
ovariole number, 208
spermatheca, 208

Rearing, Heteroptera, 680
life history, 680
Mepa, 680
Recognition, *Yponomeuta cagnagella*, 462
Reproduction, *Bemisia tabaci*, 224
Encarsia deserti, 224
host discrimination, 224
Reproductive biology, *Succulatrix thruberiella*, 406
spermatophores, 406
Reproductive development, northern corn rootworm, 841
oviposition, 841
Reproductive isolation, *Spodoptera frugiperda*, 731
Resting sites, burlap flaps, 361
survival rates, 361
Rhagoletis pomonella, adult flight, 823
phenology, 823
trapping, 823
Rhymbomicrus, Endomychidae, 456
systematics, 456
Rice, feeding flanges, 212
fungi, 212
Oebalus pugnax, 212
Riodinidae, *Calathes ovandensis*, 513
Eurybia elvina, 513
myrmecophily, 513

Salivary glands, abscission, 251
cotton, 251
cytology, 475
Mayetiola destructor, 475
microorganisms, 251
morphogenesis, 475
polytene chromosomes, 475
Pseudatomoscelis seriatus, 251
Scale, *Cerococcus mirandae*, 100
Cerococcus, 100
new species, 100
Schizaphis graminum, plant resistance, 306
sorghum, 306
wheat, 306
Scolytidae, mycangium, 692
Pityoborus spp., 692
Selection response, diapause, 797
Pectinophora gossypiella, 797
Sex pheromones, *Choristoneura fumiferana*, 78
copulation, 78
tactile cues, 78
Sexual dimorphism, *Dacus latifrons*, 765
pheromone gland, 765
Sisyridae, Aphidae, 758
foraging, 758
Sitophilus zeamais, courtship behavior, 578
mating behavior, 578
Size-selective oviposition, *Pseudacteon crawfordi*, 148
Solenopsis geminata, 148
Solenopsis xyloni, 148
Social behavior, Anthophoridae, 439
Apidae, 439
Manueliini, 439
Solenopsis geminata, *Pseudacteon crawfordi*, 148
Solenopsis xyloni, 148
size-selective oviposition, 148
Solenopsis invicta, longevity, 263
spermatheca, 263
Solenopsis xyloni, *Pseudacteon crawfordi*, 148
Solenopsis geminata, 148
size-selective oviposition, 148
Sorghum, plant resistance, 306
Schizaphis graminum, 306
wheat, 306
Speciation, *Aedes brelandi*, 109
Aedes hendersoni, 109
Aedes triseriatus, 109
cytology, 109
genetics, 109
hybridization, 109
Spectral sensitivity, *Blattella germanica*, 820
vision, 820
Spermatheca, Formicidae, 208
longevity, 263
ovariole number, 208
queens, 208
Solenopsis invicta, 263
Spermatophores, *Succulatrix thruberiella*, 406
reproductive biology, 406
Sphecidae, *Ammophila dysmica*, 739
cleptoparasite, 739
Spodoptera frugiperda, reproductive isolation, 731
Sterols, feeding, 41
phagostimulant, 41
sucrose, 41
weevils, 41
Stomoxys calcitrans, Braconidae, 391
parasitism, 391
Storage, *Cynaeus angustus*, 184
corn, 184
energy budget, 184
Sucrose, feeding, 41
phagostimulant, 41
sterols, 41
weevils, 41
Sugar, *Cochliomyia hominivorax*, 130
longevity, 130
oocyte maturation, 130
Sugar-feeding, *Aedes aegypti*, 103
Anopheles quadrimaculatus, 103
blood-feeding frequency, 103
gonotrophic cycle, 103
Supercooling, adult diapause, 284
Conotrachelus nenuphar, 284
postdiapause development, 284
Survival, *Apis mellifera*, 176
pollen, 176
Survival rates, burlap flaps, 361
Lymantria dispar, 361
resting sites, 361
Survivorship, *Dactylopius confusus*, 768
development, 541
fertility tables, 768
Heterocampa guttivitta, 541
life tables, 768
Systematics, Endomychidae, 456
Rhymbomicrus, 456

Tabanus atratus, mud cylinders, 51
pupation, 51
Tabanus conterminus, *Tabanus lineola hinellus*, 613
Tabanus nigrovittatus, 613
Tabanus lineola hinellus, *Tabanus conterminus*, 613
Tabanus nigrovittatus, 613
Tabanus nigrovittatus, *Tabanus conterminus*, 613
Tabanus lineola hinellus, 613
Tabanus spp., new species, 89
review, 89
Tactile cues, *Choristoneura fumiferana*, 78
copulation, 78
sex pheromones, 78
Taxonomy, *Acerpenna*, 667
Baetis, 667
Diphetor, 667
Ephemeroptera, 35
Fallceon, 667
Tricorythidae, 35
Telenominae, *Phanuropsis*, 660
Telenomus reynoldsi, behavior, 217
Geocoris punctipes, 217
kairomone, 217
Temperature effects, flesh flies, 790
glycerol, 790
Tephritidae, *Anastrepha suspensa*, 508
electroantennograms, 508
pheromones, 508
Thistles, biological control, 152
Cirsium, 152
herbivory, 152
insect faunas, 152
Ticks, absolute density, 624
Ixodidae, 624
Toxorhynchites, electron microscopy, 637
trichobothria, 637
Trapping, adult flight, 823
phenology, 823
Rhagoletis pomonella, 823
Tribolium spp., biogeography, 398
phylogeny, 398
Trichobothria, electron microscopy, 637
Toxorhynchites, 637
Trichoplusia ni, flight, 468
moths, 468
ocelli, 468
Tricorythidae, Ephemeroptera, 35
taxonomy, 35
Trophallaxis, *Apis mellifera*, 814
cannibalism, 814

Vacuum device, *Apis mellifera*, 664
collecting, 664
insects, 664
Valentibulla dodsoni, *Aciurina trixa*, 494
ecology, 494
life history, 494
Vision, *Blattella germanica*, 820
spectral sensitivity, 820

Weevils, feeding, 41
phagostimulant, 41
sterols, 41
sucrose, 41
Wheat, plant resistance, 306
Schizaphis graminum, 306
sorghum, 306
Wound ethylene, biological stress, 411
Pseudatomoscelis seriatus, 411

Xylaria enterogena, *Ledomyia collarata*, 502
prothoracic collar, 502
stroma, 502

Yponomeuta cagnagella, behavior, 462
life history, 462
recognition, 462

Zelus, assassin bugs, 293
distribution, 293